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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,110	08/31/2001	Andrew C Karaplis	SWA-XXX	5387

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EXAMINER	
ANGELL, JON E	
ART UNIT	**PAPER NUMBER**
1635	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,110	KARAPLIS ET AL.	
	Examiner	Art Unit	
	Jon Eric Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-10 and 20-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-10 and 20-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/21/04 has been entered.

The amendment filed 12/21/04 is acknowledged. The amendment has been entered. Claims 7-10 and 20-28 are currently pending in the application and are addressed herein.

Applicant's arguments are addressed on a per section basis. The text of those sections of Title 35, U.S. Code not included in this Action can be found in a prior Office Action. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims and/or applicant's arguments.

Claim Rejections - 35 USC § 112, 2nd paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the reasons of record set forth in the previous Office Action mailed on 12/22/03.

The instant claims have been rejected because they do not recite the methods steps.

Claim 25 is also rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 recites the limitation "The use of claim 24" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is noted that amending the claim to recite, "the method of claim 24" would obviate this rejection.

Response to Arguments

Applicant's arguments filed 12/21/04 have been fully considered but they are not persuasive.

With respect to the rejection of claims 7 and 8, Applicants argue that the claims include the step of modulating PEX expression or activity wherein such modulation results into modulation of PTH and/or PTHrP levels. Applicants assert that claims 7 and 8 embody the use of determining PEX activity in a therapeutic context whereby PTH and/or PTHrP levels are modulated in vivo to obtain the desired therapeutic effect with respect to bone breakdown and/or bone formation.

In response, "modulating PEX expression or activity" is not considered a method step as there is no indication in the claim of the steps that are taken to cause "modulating PEX expression or activity". The phrase "modulating PEX expression or activity" is considered a functional effect of the undisclosed method step. That is, the instant claims encompass performing an undisclosed method step that results in modulation of PEX expression or expression or activity.

Therefore, Applicants arguments are not persuasive.

Claim Rejections - 35 USC § 112, 1st paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-10 and 23-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement for the reasons of record set forth in the previous Office Action mailed on 12/22/03. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Response to Arguments

Applicant's arguments filed 12/21/04 have been fully considered but they are not persuasive. It is noted that the Declaration filed under 35 USC 1.132 has been considered and is addressed in detail near the end of this Action.

Applicants argue that a person of skill in the art would understand the present application to teach the use of PEX modulation in a manner as presently claimed. Furthermore, Applicant refer to the Declaration of Dr. Arthur E. Broadus (Exhibit A) which allegedly illustrates the understanding of the claimed invention, as taught in accordance with the present application by "a person of skill in the art". Applicant also assert that the subject matter of the rejected claims

is sufficiently described in the present application so as to provide a person of skill in the art with an understanding of the scope of the invention possessed by the Applicant at the time the application was filed. Applicant believes that the present application details the invention in a sufficient capacity so as to fairly predict the use of PEX modulation in the treatment of metabolic bone disease. Specifically, Applicants contend that Dr. Broadus's comments further support the use of a compound to inhibit PEX activity so as to elicit a novel therapeutic effect, based on the teachings of the present application.

In response, it is respectfully pointed out that the instant rejection is based on the lack of a sufficient description in the specification of the broad genus of compounds encompassed by the claims. The claims are very broad and encompass, for instance, any compound(s) that modulate PEX expression or activity (e.g., see claims 7-10, 23-25), functional equivalents of PEX (e.g., see claim 26); and PEX-binding compounds (e.g., see claims 27-28). Clearly, the claim encompass a genus of compounds that is indefinite in size, but could encompass thousands of compounds that are structurally and functionally distinct, including compounds that have yet to be identified or made. It is acknowledged that one of skill in the art would understand the concept of the claimed invention, that modulators of PEX or functional equivalents of PEX may be useful for treating metabolic bone diseases. ***The issue, with respect to the instant rejection, is whether or not the specification has adequately described the genus of compounds encompassed by the claims.***

As previously indicated, in order to provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of

complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the claims encompass compounds without an adequate description of the structures encompassed by the claims. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states, "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). The skilled artisan cannot envision the detailed chemical structure of the encompassed genus of compounds, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

Furthermore, one cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence. In the instant case, the claims encompass "functional equivalents" of

PEX (e.g., see claim 26). The specification has only described the structure of PEX, there is no description of any "functional equivalents" of PEX. Furthermore, there is no description of any specific modulators of PEX or PEX-binding compounds.

Therefore, the only compound encompassed by the claims that has been adequately described in the specification is PEX. There is insufficient description of the modulators of PEX, PEX-binding compounds and functional equivalents of PEX. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Additionally, claims 7-10 and 20-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ2d 1400 (CA FC 1988).

> *Wands* states on page 1404,
> "Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in Ex parte Forman. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims."

The nature of the invention

The instant claims are drawn to methods of treating metabolic bone disease by modulating PEX expression or activity, administering a compound that modulates PEX expression or activity, administering PEX or a functionally equivalent substance, or administering a PEX-binding compound. It is noted that the broad claims do indicate any particular methods steps (as indicate above); however, in view of the specification, which contemplates the nucleic acid encoding PEX, the broad claims are considered to encompass administering a nucleic acid encoding the therapeutic molecule. As such, the nature of the invention is therapeutic treatment of metabolic bone diseases, wherein the therapeutic treatment encompasses gene therapy.

The breadth of the claims

As indicated above, the claims are very broad and (in their broadest embodiments) encompass treating any metabolic bone disease using gene therapy methods, as well methods comprising administering a broad genus of different compounds, including: PEX-binding compounds, modulators of PEX expression, modulators of PEX activity, PEX as well as functional equivalents of PEX.

The unpredictability of the art and the state of the prior art

As indicated in the previous Office Action, methods of gene therapy are unpredictable. For instance, Verma and Somia (Verma IM and Somia N. Nature 389: 239-242. 1997; previously cited) summarize "In principle, gene therapy is simple: putting corrective genetic material into cells alleviates the symptoms of disease. In practice, considerable obstacles have emerged." They further add "But the problems- such as lack of efficient delivery systems, lack of sustained

expression, and host immune response reactions-remain formidable challenges" (see the abstract). Although more than 200 clinical trials are currently underway worldwide, with hundreds of patients enrolled, there is no single outcome that we can point to as a success story" (see first and second paragraphs in col 1 on page 239).

Anderson (Anderson WF. Nature 392 (SUPP):25-30, 1998; previously cited) notes that since the approval of first clinical trial of gene therapy protocol in 1990, more than 300 protocols have been approved worldwide. He further adds, "The conclusions from these trials are that gene therapy has the potential for treating a broad array of human diseases and that the procedure appears to carry a very low risk of adverse reactions; the efficiency of gene transfer and expression in human patients is, however, still disappointingly low. Except for anecdotal reports of individual patients being helped, there is still no conclusive evidence that a gene therapy protocol has been successful in the treatment of a human disease"

Romano et al. (Romano et al. Stem Cells 2000; 18: 19-39; previously cited) reporting on the recent developments of gene therapy, noted, "However, the real effectiveness of gene therapy programs is still in question. After a decade of clinical trials, the therapeutic applications of gene transfer technology are still at a rather preliminary stage."

It is noted that these reviews by the leaders in the field of gene therapy are about those gene therapy protocols and applications where the mechanism of action and some efficacy has been determined in animals models and there may be some extrapolatable correlations indicating the therapeutic effects of a particular gene's encoded protein. Even with such results, it is uncertain whether there would be a therapeutic effect when the studies obtained in a mouse model or another animals model is extended to a human subject.

Furthermore, with respect to the treatment of metabolic bone diseases, it is respectfully pointed out that "metabolic bone disease" is broad class of diseases, including (and specifically claimed in dependent claims) osteomalacia, osteoporosis, osteopetrosis, Paget's disease, and X-linked hypophosphatemic rickets.

With respect to the treatment of X-linked hypophosphatemic rickets (HYP), it is noted that the instant claims indicate that modulation of PEX expression or activity results in modulation of parathyroid hormone (PTH) and/or parathyroid hormone-related peptide (PTHrP), which regulates osteoblast activity in a patient to modulate bone breakdown and/or formation (e.g., see claim 7). However, the prior art indicates that PTH may not be involved in the pathogenesis of HYP (see p. F490, first full paragraph). Specifically, Econs et al. (Am. J. Physiol. 273 (Renal Physiol. 42): F489-F498; 1997) teaches,

> "Several lines of evidence of evidence suggest that [PTH is not involved in HYP]. First PTH concentrations are normal in HYP patients; second, parathyroidectomy does not alleviate the phosphate wasting in HYP mice; and, third, Lyles et al. described a HYP patient with concurrent iodiopathic hypoparathyroidism who had phosphate wasting once serum calcium levels were corrected. Hence it is generally believed that PTH is not responsible for hypophophatemia in HYP, and researchers have pursued other lines of investigation to determine the pathogenesis of phosphate wasting." (See p. F490, first full paragraph)

Furthermore, Econs also indicates that Vitamin D metabolism is postulated as involved in HYP (e.g., see p. F491, first column, last paragraph); and also teaches that PEX may have a role in processes unrelated to phosphate homeostasis (e.g., see F494, second column, first 4 lines). Furthermore, Econs teaches that although PEX mutations are associated the HYP phenotype in mice, "there does not appear to be a strong genotype phenotype correlation in humans... It has also been suggested that differences in the biochemical manifestations of the mutations may be related to background strain and dietary differences." (See p. F494, last paragraph).

Therefore, it is clear that HYP (X-linked hypophosphatemic rickets) is a disease that involves multiple biochemical factors, including phosphate wasting, vitamin D metabolism, and possibly the PEX gene.

Furthermore, regarding metabolic bone diseases in general, the prior art recognized that these diseases encompassed a wide array of diseases that are multi-factorial in nature. For instance, Zmuda et al. (Genetic Epidemiology, Vol. 16:356-367; 1999) teaches,

> "A genetic contribution to osteoporosis and fracture is well documented, but the genes and allelic variants conferring osteoporotic risk are largely undefined." (P. 356, introduction); and,
>
> "Although a gene tic influence on osteoporotic risk is well established, the number of genes involved, their chromosomal location, the magnitude of their effects, and the way they interact with each other and with other risk factors are not well defined. (p. 357, "Osteoporosis susceptibility Genes"); and identifies a number of allelic variants in several genes that may be involved in osteoporosis (including alpha-2-HS-glyocprotein, estrogen receptor, Interluekin-6, Collagen 1A1, Colagen 1A2, Vitamin D receptor, TGR-beta 1 and ApoE) (e.g., see p. 358, Table 1);
>
> "Osteoporosis is a complex disease, and allelic variation in many other candidate genes including those that encode growth factors, cytokines, calciotropic hormones, and bone matrix proteins are likely to also play a role and warrant systematic investigation." (p. 363, Summary).

Therefore, it is clear that metabolic bone diseases are complex disease that are multifactorial in nature, thus indicating the that it would be unlikely that any single agent would be a "master drug" capable of treating metabolic bone disorders, regardless of their cause.

Working Examples and Guidance in the Specification

It is noted that the specification only teaches cloning of PEX cDNA, its characterization, expression pattern in tissues, in vitro translation of PEX CRNA and that the recombinant PEX

protein has endopeptidase activity as it has been shown to cleave PTH (see pages 9-25 of the specification).

The specification does not provide any guidance for teaching any disease with any modulator. The specification does not teach what modulators will be used, how will they be administered, what doses will be used, what type of vectors or delivery vehicles will be used and whether there will be any type of therapeutic effect after the administration of recited modulators. It is noted that the only description regarding any treatment method in the specification is statements such as on page 3, lines 25-27 or page 4, lines 18-22 of the specification disclose:

"In accordance with the present invention there is provided a method for treatment of metabolic bone diseases comprising administering to a patient a compound for the modulation of PEX enzymatic activity". Such statements do not provide enabling disclosure since they do not provide any guidance regarding the compound to be used, how will an artisan make such compound and how will an artisan use the compound in treatment of bone disease.

Quantity of Experimentation

Considering the breadth of the claims and the state of the prior art, additional experimentation would be required to establish that PEX is directly involved in the metabolic bone diseases, and that PEX could be used to treat metabolic bone diseases commensurate in scope with the claims. Considering the state of the art which indicate that metabolic bone disorders are complex multifactorial diseases wherein no "master drug" has been identified to treat all the different possible causes of the metabolic bone disorders, the amount of additional experimentation required is deemed to be undue.

Level of the skill in the art

The level of the skill in the art is deemed to be high.

Conclusion

Considering the nature of the invention, the breadth of the claims, the unpredictable nature of the invention as recognized in the prior art, the limited amount of working examples and guidance provided, and the high degree of skill required to practice the invention, it is concluded that the specification does not provide an enabling disclosure for the instant claims. Therefore, additional experimentation is required before one of skill in the art could make and use the claimed invention. The amount of additional experimentation required to perform the broadly claimed invention to its full scope is undue.

Response to Arguments

Applicant's arguments filed 12/21/04 have been fully considered but they are not persuasive. It is noted that the Declaration filed under 35 USC 1.132 has been considered and is addressed in detail near the end of this Action.

Applicant believes the teaching of the present application together with the data, as presented as Exhibit B would clearly enable a person of skill in the art to make and/or use the invention as claimed. Applicant asserts that the data presented in Exhibit B illustrates the modulation of PTHrP when PEX is inhibited by phosphoramidon, both in vitro and in vivo. Applicant contends that these findings further corroborate with the teachings of the present application in that they support the therapeutic effect of such modulation in vivo whereby an elevation in serum osteocalcin levels (a marker for bone formation) is evident.

In response, the arguments and Exhibit B have been fully considered but are not persuasive. It is respectfully pointed out that the instant claims are drawn to methods of treating metabolic bone disease. It is acknowledged that claims 23-28 indicate that they are methods of modulating PTH and/or PTHrP levels or modulating PEX activity; however, in view of the specification, the only contemplated use for modulating PEX activity or for modulating PTH and/or PTHrP levels is for treating a bone metabolic disorder. As such, all claims are considered methods of treating metabolic bone disorders.

Exhibit B is not considered a proper model for treating metabolic bone disease because the animal model used is not a proper animal model for metabolic bone disease as the animals are normal animals; that is, the animals models used in the experiments do not have a metabolic bone disorder. Since the animals used in the experiments of Exhibit B do not have a metabolic bone disorder, it cannot be determined if the treatments would ameliorate the effects caused by a particular metabolic bone disease. It is noted, as indicated above, that metabolic bone diseases are a class of complex diseases that are multifactorial in nature. Since the animal models used in the experiments do not have any of the problems associated with a metabolic bone disease, they cannot accurately determine if the claimed methods can be used to treat a metabolic bone disorder.

Furthermore, the data presented is not commensurate in scope with the claimed invention. As indicated in a previous Office Action, the claims encompass gene therapy methods. However, Exhibit B does not disclose any gene therapy methods wherein a nucleic acid encoding a modulator of PEX (or encoding PEX itself) is successfully delivered to a cell in vivo such that

the therapeutic gene is expressed at a sufficient level for an adequate period of time to ameliorate the effects of a metabolic bone disorder.

Additionally, it is respectfully pointed out that phosphoramidon is a general metalloprotease inhibitor that does not specifically inhibit PEX, but inhibits other neutral endopeptidases including NEP and ECE (e.g., see p.2 of Exhibit B). Therefore, the experiments cannot conclusively determine if the effects of the treatment are due explicitly to PEX or to a different endopeptidase. It is acknowledged that the Exhibit indicates that studies have shown that PTH and PTHrP are not substrates of NEP or ECE. However, simply because PTH and PTHrP are not substrates of NEP or ECE is not indicative that the levels of PTH and PTHrP are due to PEX activity, as asserted by the Applicant. Since phosphoramidon does not specifically inhibit PEX, it is possible that phosphoramidon is inhibiting the activity of a different protease. Therefore, Exhibit B does not conclusively show that PEX can be used to treat metabolic bone disease, and as such, the instant claims are not enabled.

Response to Amendment

The declaration under 37 CFR 1.132 filed 12/21/04 is insufficient to overcome the rejection of claims 7-10 and 20-28 based upon insufficiency of disclosure under 35 U.S.C. 112, first paragraph as set forth in the last Office action for the following reasons.

The arguments of the submitted declaration are based on the disclosure of the specification "supplemented by Appendix B" (e.g., see page 2, number 5 of the declaration). Therefore, the arguments of the declaration are based on the data presented in experiments of Appendix B (i.e., Exhibit B). However, as indicated above, the experiments of Exhibit B are not

commensurate in scope with the claimed invention, as they do not address the problems associated with gene therapy indicated in rejection. Furthermore, the animal model used in the experiments of Exhibit B is not a proper animal model for treating a metabolic disease because the animal does not have a metabolic disease. Since the animals used in the experiments of Exhibit B do not have a metabolic bone disorder, it cannot be determined if the treatments would ameliorate the effects caused by a particular metabolic bone disease. It is noted, as indicated above, that metabolic bone diseases are a class of complex diseases that are multifactorial in nature. Since the animal models used in the experiments do not have any of the problems associated with a metabolic bone disease, they cannot accurately determine if the claimed methods can be used to treat a metabolic bone disorder.

Therefore, the declaration is not persuasive, and the rejection of claims under 35 USC 112, 1st paragraph is not withdrawn.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Eric Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Mon-Fri, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader can be reached on 571-272-0760. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jon Eric Angell
Art unit 1635

DAVE TRONG NGUYEN
PRIMARY EXAMINER